Contents:

Meetings/Events & Dept. News........................................1
Undergrad/Graduate Student News.............................3
University News.........................................................4

DEPARTMENT NEWS

EAPS DEPARTMENT SEMINARS

Special Seminar
Michelle Thompson
NASA Johnson Space Center
Monday, March 27, 2017
10:30 AM
HAMP 2201

Richard Rotunno
National Center for Atmospheric Research
Thursday, March 30, 2017
3:30 PM
HAMP 1252

EAPS PUBLICATIONS

DEPARTMENT OF EARTH, ATMOSPHERIC, AND PLANETARY SCIENCES SPONSORING THE PURDUE STUDENT PUGWASH CONFERENCE

You’re invited to dine with Astronaut David Wolf and other renowned experts at Pugwash Space Conference!

Purdue Student Pugwash is an organization dedicated to empowering and equipping students to identify and shape the societal dimensions of science and technology. You are invited to participate in the 12th Annual Midwest Regional Conference titled “Space and Society: Governing the Galaxy” to be held on April 7-8, 2017 at the PMU West Faculty Lounge. Registration is free and includes dinner.

More information can be found at: http://www.conf.purdue.edu/pugwash.

Additionally, an interactive workshop will be hosted on Saturday, April 8th, which is designed to give students the skills to understand space and other technological systems in a societal and policy context. The workshop will include a visioning exercise, a model-UN exercise on space, and small break out discussions.

Applications for the workshop can be found here: http://www.spusa.org/space and are due March 24th!

Please see attached flier for more details.

EAPS RELAY FOR LIFE

This year the EAPS Graduate Student Association is participating in the Purdue Relay for Life event held at the COREC on April 7-8th from 6 pm-6 am. They ask that any and all interested should attend or help us with fundraising efforts. Each and every donation helps fund groundbreaking cancer research, patient care programs, and can make a difference in communities like ours.

Please join their team or make a donation at the following URL: http://main.acsevents.org/site/TR?team_id=2152663&pg=team&fr_id=814756&locale=en_US&et=FCdaIDjTblecHnRAH6k9Q.

BLACK AND GOLDEN JUBILEE OPEN FOR REGISTRATION

The Black & Golden Jubilee website is now open for registration. For more information on the event: go to the event website. To register, go to the registration website.

UPCOMING OUTREACH EVENTS!

Spring fest will be Saturday, April 8th. EAPS department will have their tornado machine, rocks and fossils from Indiana, the fossil dig, water table looking at features on Mars, volcano demonstrations, and Purdue University Meteorological Association (PUMA) will be training interested persons in a weather watcher citizen science program!

The GLOBE Midwest Student Research Symposium will be held here on campus, in Stewart Center May 19 - 20, 2017.

We need help with the earth cache event on Friday, May 19th! Also, if you would be interested in judging posters and interacting with students on May 20th, please let Steven Smith know.

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http://www.eaps.purdue.edu/
GRAD SCHOLARSHIP

U.S. Graduate Student Scholarships for the 2017 Urbino Summer School in Paleoclimatology (USSP)
The 14th Urbino Summer School in Paleoclimatology (12-28 July; http://www.urbinossp.it/) will provide graduate students with an intensive program on reconstructing the history and dynamics of paleoclimate through an integrated series of lectures, investigations, case studies, and field and laboratory analyses. To promote U.S. graduate student participation in this international experience, the National Science Foundation is providing support for ten scholarships to cover airfare, stipend, and course expenses (including lodging).

Interested students in U.S. graduate programs should email a pdf file comprised of a one-page CV and a one-page statement on how the USSP would benefit their professional development as a researcher and educator to nsfusspscholarship@gmail.com. In addition, students should request their primary adviser to email a recommendation letter directly to the above email address. Members of historically underrepresented groups are encouraged to apply. Deadline for receipt of application materials, including recommendation letters, is 1 April 2017.

THREE MINUTE THESIS

The Three Minute Thesis (3MT™) is a research communication competition developed by The University of Queensland. The competition develops academic, presentation, and research communication skills and supports the development of students' capacities to effectively explain their research in language appropriate to an intelligent but non-specialist audience. Graduate students will have three minutes to present a compelling discussion on their research topic, its significance and relevance to the general public. 3MT™ is not an exercise in trivializing or 'dumbing-down' research but forces competitors to consolidate their ideas and crystallize their research discoveries. It is a celebration of the discoveries made by graduate students and will allow the broader community to learn about on-going research at Purdue.

This is a fast-paced competition where the top 10 finalists compete by summarizing their 3 + years of research in only 3 minutes with only 1 slide. It is a free event and open to the public. A Panel of Judges will select the 1st and 2nd place winners but the People’s Choice Award will be selected by the audience.

For more information, go to: http://www.purdue.edu/gradschool/student/3mt.html.

CROSSROADS GEOLOGY CONFERENCE

The student members of the Rho chapter of Sigma Gamma Epsilon at Indiana University would like to extend a formal invitation to participate in the 17th Annual Crossroads Geology Conference, March 31 & April 1, 2017 at Indiana University in Bloomington, IN.

Crossroads is a student-organized event featuring research presentations by graduate and undergraduate students across the Midwest. This conference is open to any student in Earth, atmospheric, or planetary science to present their research. Students from other fields, such as archaeology, physics, or anthropology, are also welcome to present research relating to geological sciences.

Crossroads is free to all students (including meals) and is an excellent opportunity to interact with judges from a variety of industry and academic fields. Awards will be presented to top oral and poster presentations for undergraduate and graduate students. In addition, students are encouraged to participate in networking social, a campus geology tour and a career panel discussion lead by our judges.

For more information, go to http://www.indiana.edu/~sgeweb1.
FREE ONLINE COURSE ON RESERVOIR GEOMECHANICS

Professor Mark Zoback, Stanford University
Start Date: 3 April 2017
Duration: 10 weeks, 20, 90-minute lectures, 8 homework (HW) assignments

This interdisciplinary course encompasses the fields of rock mechanics, structural geology, earthquake seismology and petroleum engineering to address a wide range of geomechanical problems that arise during the exploitation of oil and gas reservoirs. To date, 7,000 people – principally college students and current industry professionals – have successfully completed the course.

The course considers key practical issues such as prediction of pore pressure, estimation of hydrocarbon column heights and fault seal potential, determination of optimally stable well trajectories, casing set points and mud weights, changes in reservoir performance during depletion, and production-induced faulting and subsidence. The first part of the course establishes the basic principles involved in a way that allows readers from different disciplinary backgrounds to understand the key concepts.

Reservoir Geomechanics is a practical course for geoscientists and engineers in the petroleum and geothermal industries, and for research scientists interested in stress measurements and their application to problems of faulting and fluid flow in the crust.

The course follows the textbook, Reservoir Geomechanics by Prof. Zoback. The book is recommended, but not required for the course. It is available from Cambridge University Press and Amazon. It is also available in electronic form for the Kindle.

A Certificate of Accomplishment will be issued to students who complete HW assignments with a grade of 70%, or better.

For more information and to enroll go to the following URL:

UNDERGRADUATE RESEARCH AND POSTER SYMPOSIUM

The 2017 Undergraduate Research and Poster Symposium has been set for Tuesday, April 11, 2017. If you are a student, consider participating in this wonderful opportunity, and, if you are a faculty member, consider being a judge for the College of Science. Please think about donating an hour (or more) of your time to participate as a judge, it would be greatly appreciated.

More information can be found on the symposium website. If you have any questions, you can send them to Robin Spes at rsipes@purdue.edu.

UNIVERSITY NEWS

VII EARTH SCIENCES CONVENTION (EXHIBITION OF PRODUCTS, NEW TECHNOLOGIES AND SERVICES)

The Cuban Geological Society (SCG) is inviting scientists, professionals, technicians, and university students of Geology, Geophysics, and Mining and related Geosciences, to participate in the VII Earth Sciences Convention, to be held at the International Conference Center in Havana, Cuba on April 3-7, 2017.

For further information, please contact: www.scg.cu; www.cubacientiasdelatierra.com; geociencias@mnhnc.inf.cu or see attached flier.

MONTHLY MINGLE
REFRESHMENTS & FRESH IDEAS

The Center for the Environment will be hosting their Monthly Mingle Friday, March 31, from 4:00-5:30 PM in Mann Hall, Room 203 and the second floor atrium.

The Mingle topic will be Water Challenges and our “thought provokers” are:

http://www.eaps.purdue.edu/
• Marty Frisbee, Earth, Atmospheric & Planetary Sciences−Water Resources & Availability
• Margaret Gitau, Agricultural & Biological Engineering−Nutrient Leaching & Hypoxia
• Venkatesh Merwade, Civil Engineering−Flood Infrastructure
• Linda Prokopy, Forestry & Natural Resources−Funding for Water Research

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TESSMAN SYMPOSIUM
IN HONOR OF IRWIN TESSMAN

Monday, May 1, 2017
Class of 1950 Lecture Hall
9:00 AM – 4:00 PM
Breakfast and lunch provided

Invited speakers:
Max Gottesman – Columbia University
Eric Keen – Washington University
Jeffrey H. Miller – UCLA
Jack Johnson – Scripps Research Institute
Andrei Fokine – Purdue University
Stefan Pukatzi – University of Alberta
Wei Yang – NIH/NIDDK

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PURDUE UNIVERSITY CHAPTER OF SIGMA XI
ANNUAL AWARDS BANQUET & NEW MEMBER INDUCTION

Guest Speaker: Jay Melosh
April 12, 2017
6:00 PM
John Purdue Room

Please see attached flier for more details.

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PURDUE TO ADD TWO-FACTOR AUTHENTICATION FOR ALL FACULTY AND STAFF IN SEPTEMBER

Shortly after the start of the fall 2017 semester, all of Purdue’s faculty and staff will need to begin using two-factor authentication, known at Purdue as BoilerKey, to log into the One Purdue (SAP) portal, improving security of personal and University data alike.

ITaP will roll out the new BoilerKey sign-up beginning in mid-April. Purdue faculty and staff can expect direct emails, social media posts and Purdue Today articles to give instructions on how and where to sign up throughout the summer and up until the September 19 deadline. The OnePurdue (SAP) portal allows employees to create leave requests and check paystubs. It also handles many of the University’s business functions.

Implementing BoilerKey at Purdue also protects the University from a growing number of cyberattacks on colleges and universities.

What is two-factor authentication?

Boiler Key adds a second login requirement to go with your password. At Purdue, it’s a numerical code randomly generated on a smartphone app called Duo or a key fob.

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PURDUE UNIVERSITY COLLEGE OF VETERINARY MEDICINE

PVM RESEARCH DAY KEYNOTE SPEAKER

Jonna Mazet, DVM, MPVM, PHD
“One Healthy – A Prescription for Preparedness”

Monday, April 10, 2017
3:15-4:15 PM
LYNN 1136

Please see attached flier for more details.

http://www.eaps.purdue.edu/
IMPORTANT NOTICE ABOUT THIS NEWSLETTER

This newsletter is used as the primary information source for current and upcoming events, announcements, awards, grant opportunities, and other happenings in our department and around campus. Active links to additional information will be provided as needed. Individual email announcements will no longer be sent unless the content is time-sensitive. We will continue to include our publications, presentations and other recent news items as well.

Those using paper copies of the newsletter should go to our newsletter archive on the EAPS website at http://www.eaps.purdue.edu/news/newsletters.html and Click on News to access active links as needed. Material for inclusion in the newsletter should be submitted to Fallon McQuem (fmcquem@purdue.edu) by 5:00pm on Thursday of each week for inclusion in the Monday issue.

If it is in the newsletter, we assume you know about it and no other reminders are needed. For answers to common technology questions and the latest updates from the EAPS Technology Support staff, please visit: http://www.eaps.purdue.edu/resources/information_technology/index.htm

Also, as an additional resource for information about departmental events, seminars, etc., see our departmental calendar at http://www.EAPS.purdue.edu/events-calendar.html
PURDUE UNIVERSITY
Department of Earth, Atmospheric, and Planetary Sciences
Colloquia – Spring 2017
Thursdays at 3:30 PM, Room 1252 HAMP (unless noted)

Jan. 12 Thijs Heus, Cleveland State University  Host: Tung
Feb. 2 Mark Harrison, UCLA  Host: Caffee
Feb. 9 Jim Kasting, Penn State University  Host: Melosh
Feb. 14 Matt Bowers, PhD candidate  Advisor: Tung
  **Tuesday, 4:00PM, Room 2201/HAMP**
Feb. 16 Praveen Kumar, University of Illinois  Host: Filley
Feb. 21 Christy Gibson, PhD candidate  Advisor: Filley
  **Tuesday, 4:00PM, Room 2201/HAMP**
Feb. 23 Kate Freeman, Penn State University  Host: Melosh
Mar. 2 Lou Wicker, NSSL  Host: Dawson
Mar. 7 Chang Liao, PhD candidate  Advisor: Zhuang
  **Tuesday, 4:00PM, Room 2201/HAMP**
Mar. 9 Tonglin Zhang, Department of Statistics, Purdue University  Host: Zhuang
Mar. 21 Kevin Grady, PhD candidate  Advisor: Gluhovsky
  **Tuesday, 4:00PM, Room 2201/HAMP**
Mar. 23 David Genereux, North Carolina State University  Host: Frisbee
Mar. 30 Richard Rotunno, National Center for Atmospheric Research  Host: Agee
Apr. 5 Chen Chen, PhD candidate  Advisor: Andronicos/Gilbert
  **Wednesday, 3:30PM, Room 2201/HAMP**
Apr. 6 Ken Edgett, Malin Space Science Systems  Host: Horgan
Apr. 12 Christopher Roemmele, PhD candidate  Advisor: Shepardson
  **Wednesday, 3:30PM, Room 2201/HAMP**
Apr. 13 Marc Caffee, Department of Physics, Purdue University  Host: Agee
Apr. 19 Scott Anderson, Jahns Lecturer  Host: West
  **Wednesday, 3:30PM, Room B155 LWSN**
Apr. 20 Naomi Levin, University of Michigan  Host: Welp
Apr. 21 Dan Cziczo, MIT  Host: Agee
  **Friday, 1:30PM, HAMP 1252**
Apr. 25 Sampa Das, PhD candidate  Advisor: Harshvardhan
  **Tuesday, 4:00PM, Room 2201/HAMP**
Apr. 27 Mike Willis, University of Colorado Boulder  Host: Elliott
Space weathering processes alter the chemical composition, microstructure, and spectral properties of surface materials on airless bodies. Understanding the mechanisms driving space weathering is critical for improving our understanding of the evolution of airless bodies in the solar system and is relevant for current and future exploration missions. My research employs a multifaceted approach for studying this phenomenon by combining detailed analyses of returned samples with experimental simulation of space weathering in the laboratory and spectroscopic techniques. I will discuss transmission electron microscope (TEM) analyses of space weathering features in samples returned from the Moon and near-Earth asteroid Itokawa and the implications of these results for space weathering across the inner solar system. I will present a novel technique for simulating micrometeorite impacts in situ inside the TEM as well chemical, microstructural, and spectral results from the simulated weathering of carbonaceous chondrites. I will place these results in the context of airless body evolution and will discuss their relevance for upcoming sample return missions such as OSIRIS-REx and Hayabusa2.
Near-ground Vertical Vorticity in Supercell Thunderstorm Models

Richard Rotunno
National Center for Atmospheric Research

Numerical models of supercell thunderstorms produce ‘near-ground’ rotation about a vertical axis (i.e., vertical vorticity) after the development of rain-cooled outflows and downdrafts. The physical processes involved in the production of near-ground vertical vorticity in simulated supercells have been a subject of discussion in the literature for over thirty years. One cause for this lengthy discussion is the difficulty in applying the principles of inviscid vorticity dynamics in a continuous fluid to the viscous evolution of discrete Eulerian simulations. In this seminar I will present a Lagrangian analysis of near-ground vorticity from an idealized supercell simulation with enhanced vertical resolution near the lower surface. The parcel that enters the low-level maximum of vertical vorticity has a history of descent during which its horizontal vorticity is considerably enhanced. In its final approach to this region, the parcel's enhanced horizontal vorticity is tilted to produce vertical vorticity which is then amplified through vertical stretching as the parcel rises. A simplified theoretical model is developed that exhibits these same features. The principal conclusion is that vertical vorticity at the parcel's nadir (its lowest point), although helpful, does not need to be positive for rapid near-surface amplification of vertical vorticity.
Purdue University Chapter of Sigma Xi
The Scientific Research Honor Society

Annual Awards Banquet
& New Member Induction

Guest Speaker:
Jay Melosh, Distinguished Professor of Earth, Atmospheric and Planetary Science, representing the Purdue team awarded the inaugural NEW HORIZONS grant for:

Extraterrestrial Habitat Engineering

6:00 pm, Wednesday, April 12, 2017.
John Purdue Room in Marriott Hall.
Reservations Required (see below)

RESERVATIONS:
http://www.purdue.edu/research/sigmaxi/
(Contact: Ann Cripe, 494-6855)
In honor of Irwin Tessman
Tessman symposium

Invited Speakers:
Max Gottesman
Columbia University
Eric Keen
Washington University
Jeffrey H. Miller
UCLA
Jack Johnson
Scripps Research Institute
Andrei Fokine
Purdue University
Stefan Pukatzi
University of Alberta
Wei Yang
NIH/NIDDK

Save the Date!
Monday, May 1st, 2017
Class of 1950 Lecture Hall
9 am - 4 pm
Breakfast and lunch provided
Poster session during lunch break
More details coming soon!

Presented by the Microbiology, Immunology, and Infectious Disease area, Biological Sciences
PURDUE STUDENT PUGWASH CONFERENCE 2017

SPACE & SOCIETY
GOVERNING THE GALAXY

REGISTRATION (FREE!): WWW.CONF.PURDUE.EDU/PUGWASH
FRIDAY, APRIL 7 - PMU WEST FACULTY LOUNGE - OPENS AT 5:30PM
SATURDAY, APRIL 8 - STEW 306 - OPENS AT 9:00AM

PURDUE ENGINEERING
SCHOOL OF AERONAUTICS & ASTRONAUTICS
SCHOOL OF MECHANICAL ENGINEERING
LYLES SCHOOL OF CIVIL ENGINEERING
SCHOOL OF CHEMICAL ENGINEERING

PURDUE SCIENCE
DEPARTMENT OF EARTH, ATMOSPHERIC, & PLANETARY SCIENCES
DEPARTMENT OF CHEMISTRY
DEPARTMENT OF PHYSICS & ASTRONOMY

PURDUE LIBRARIES
KRANNERT SCHOOL OF MANAGEMENT
THE GRADUATE SCHOOL
PURDUE POLYTECHNIC INSTITUTE
DEPARTMENT OF FORESTRY & NATURAL RESOURCES
DEPARTMENT OF AGRICULTURAL ECONOMICS
OFFICE OF EXECUTIVE VICE PRESIDENT FOR RESEARCH & PARTNERSHIPS
STUDENT ORGANIZATION GRANT ALLOCATION
“One Health - A Prescription for Preparedness”

The frequency of pandemics is increasing, driven by surging populations, environmental change and globalized trade and travel. The SARS, pandemic influenza, MERS, Ebola and Zika virus outbreaks illustrate that we are ill-prepared to mitigate the impact of a novel zoonotic virus or prevent its emergence – leaving humanity vulnerable to catastrophe. Only a small proportion of viral threats have been identified (estimated to be much less than 1%). The One Health approach has now been applied in over 30 countries, providing a proof of concept that viruses and their associated risk ecology can be identified in advance of spillover. Activities in these countries also provide evidence that a global initiative to identify and characterize most significant viral threats circulating in the world is achievable over the next ten years at a total cost less than the financial burden of response to just one spillover – a critical and essential step towards ending the pandemic era.